



El Camino College
COURSE OUTLINE OF RECORD – Official

Subject:	PASS
Course Number:	503
Descriptive Title:	Science
Division:	Library and Learning Resources
Department:	Pathways to Academic Success
Course Disciplines:	General Science
Catalog Description:	This noncredit open entry/open exit course prepares students for the science portion of the General Education Development (GED) exam and High School Equivalency Test (HiSET) in science. It provides instruction in biology, physiology, chemistry, earth, and space science. Students also learn skill building in test-taking strategies for multiple choice and short-answer response questions on the GED and HiSET exams. Upon completion and demonstration of competence in the course, students may continue GED and HiSET preparation or advance to develop skills for the workplace and to prepare for future educational opportunities.
Prerequisite:	
Co-requisite:	
Recommended Preparation:	
Enrollment Limitation:	
Hours Lecture (per week):	2
Hours Laboratory (per week):	0
Outside Study Hours:	4
Total Course Hours:	36
Course Units:	0
Grading Method:	Pass/No Pass/SP
Credit Status:	Non Credit
Transfer CSU:	No
Effective Date:	
Transfer UC:	No
Effective Date:	
General Education ECC:	
Term:	
Other:	
CSU GE:	
Term:	
Other:	
IGETC:	

Term:	
Other:	
Student Learning Outcomes:	<p>SLO #1 Scientific Practices</p> <p>Explain scientific practices.</p> <p>SLO #2 Hypothesis Formation</p> <p>Hypothesize unifying concepts and processes in life science, physical science, earth science, and space science.</p> <p>SLO #3 Visual Information Interpretation</p> <p>Interpret visual information (pictures, maps, charts, graphs, and/or tables) as it relates to science.</p> <p>SLO #4 Short Answer Formulation</p> <p>Formulate short answer responses using given stimulus materials and associated prompts.</p>
Course Objectives:	<ol style="list-style-type: none"> 1. Identify unifying concepts in science. 2. Explain how atoms are the building blocks of matter. 3. Define a chemical reaction. 4. Explain the relationship between motions and forces. 5. Describe energy and its forms. 6. Give examples of the interaction of energy and matter. 7. Explain cell functions. 8. Explain how traits are passed from parent to offspring. 9. Explain how organisms change over time. 10. Discuss how organisms interact with each other and with their environment. 11. Explain chemical changes that occur to keep an organism functioning. 12. Explain how behavior is controlled in organisms. 13. Identify forces that change the Earth's landscape. 14. Explain how geochemical cycles affect Earth. 15. Identify ways scientists determine the Earth's beginnings. 16. Explain why studying disease is important. 17. Give examples of the relationship between population and resources.
Major Topics:	<p>I. Science Practices (9 hours, lecture)</p> <p>A. Scientific Presentations</p> <ol style="list-style-type: none"> 1. Textual, symbols, terms, and phrases <p>B. Investigation Design</p> <ol style="list-style-type: none"> 1. Possible sources of error and redesign 2. Hypothesis

3. Experimental and observational design - strengths and weaknesses

4. Independent and dependent variables

C. Reasoning from Data

1. Textual evidence, prediction, and sampling

D. Evaluating Conclusions with Evidence

E. Working with Findings and Expressing Scientific Information

1. Visually

2. Numerically or symbolically

3. Verbally

G. Scientific Theories

1. Models

2. Theories

3. Processes

4. Formulas

II. Life Science (9 hours, lecture)

A. Human Body and Health

1. Body systems

2. Homeostasis

3. Sources of Nutrients

4. Transmission of disease and pathogens

B. Relationships between Life Systems and Energy Intake

1. Photosynthesis, respiration, fermentation

C. Ecosystems

1. Flow of energy; sources; conservation

2. Flow of matter

3. Capacity

4. Symbiosis

5. Disruption of ecosystems

D. Organization of Life

1. Functions of life

2. Cell theory

3. Mitosis; meiosis

E. Molecular Basis for Heredity

F. Evolution

III. Physical Science (9 hours, lecture)

A. Conservation, Transformation, and Flow of Energy

1. Heat, types of energy, sources of energy, types of waves

B. Work, Motion, and Forces

C. Chemical Properties and Reactions Related to Living Things

1. Structure of matter

2. Physical and chemical properties

3. Balancing chemical equations

IV. Earth and Space Science (9 hours, lecture)

A. Interactions between Earth's Systems and Living Things

1. Cycles of matter

2. Natural hazards

3. Use of natural resources

B. Earth's and its System Components and Interactions

1. Atmosphere and climate change

2. Oceans

3. Interaction between Earth's systems

4. Interior structure and its effects

	<p>5. Major landforms</p> <p>C. Structure and Organization of the Cosmos</p> <p>1. The universe</p> <p>2. Solar system; motions and interactions.</p> <p>3. Age of the Earth (fossils, landforms, etc.)</p>
Total Lecture Hours:	36
Total Laboratory Hours:	0
Total Hours:	36
Primary Method of Evaluation:	3) Skills demonstration
Typical Assignment Using Primary Method of Evaluation:	Complete the HSE PLATO Science Unit 3 Module - Differentiate between the Different States of Matter. Review your results with faculty or tutor for further instruction.
Critical Thinking Assignment 1:	<p>Research deforestation on the Internet. Word process a short answer response to the following prompt. Time yourself for no more than 10 minutes for the writing part of this assignment.</p> <p>Prompt: Deforestation is the clearing away of trees. It is occurring in tropical rainforests. Explain how deforestation could disrupt the life cycle of <i>Ophiocordyceps unilateralis</i> in tropical rainforests. Include multiple pieces of evidence to support your answer.</p>
Critical Thinking Assignment 2:	<p>A farmer purchased 30 acres of farmland. The farmer calculated that the average topsoil thickness on the farmland is about 20 centimeters. He wants to maintain the thickness of the soil on this farmland by reducing erosion and plans to test the effectiveness of two different farming methods for reducing soil erosion.</p> <p>Method 1: No-till (planting crops without plowing the soil)</p> <p>Method 2: Winter cover crop (growing plants during the winter that are plowed into the soil in spring)</p> <p>The farmer hypothesizes that using either method will reduce erosion compared to using traditional farming methods (plowing and no cover crop. Design a controlled experiment that the farmer can use to test this hypothesis. Include descriptions of data collection and how the farmer will determine whether his hypothesis is correct.</p>
Other Evaluation Methods:	Completion, Embedded Questions, Homework Problems, Matching Items, Multiple Choice, Objective Exam
If Other:	
Instructional Methods:	Demonstration, Discussion, Group Activities, Lecture, Multimedia presentations
If other:	
Work Outside of Class:	Answer questions, Problem solving activity, Required reading, Study
If Other:	
Up-To-Date Representative Textbooks:	Bowling, Matthew. <i>GED Study Guide: 2023-2024</i> . Mometrix, 2022.

Alternative Textbooks:	
Required Supplementary Readings:	
Other Required Materials:	
Requisite Category	
Requisite course:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill(s). if applicable	
Requisite course:	
Requisite and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s).	
Requisite Skill:	
Requisite Skill and Matching skill(s): Bold the requisite skill. List the corresponding course objective under each skill(s). if applicable	
Enrollment Limitations and Category:	
Enrollment Limitations Impact:	
Course Created by:	Matthew Kline
Date:	04/14/2023
Original Board Approval Date:	12/18/2023 effective SP 2024